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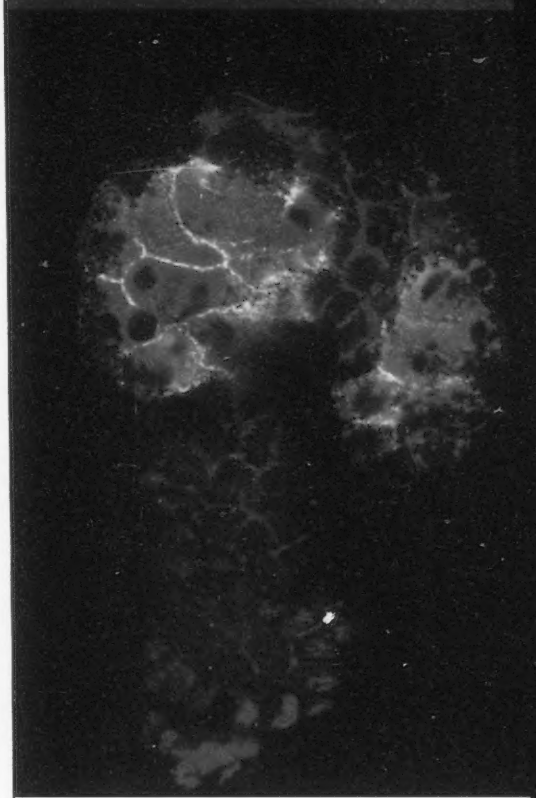

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A hair follicle (stained for E-cadherin, green) from a mouse whose skin lacks Runx1 in its mesenchymal layer shows ectopic expression of the transcription factor Lef1 (red) in the hair follicle stem cell compartment. Osorio et al. reveal that mesenchymal Runx1 suppresses epithelial Lef1 expression during embryonic development to guide the specification and maintenance of adult hair follicle stem cells.
Image courtesy of Karen Osorio.
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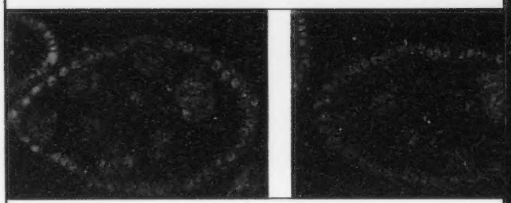

Morawe et al. report that the ubiquitin receptor Rings lost is required for the development of ring canals—actin-rich structures that connect the cytoplasm of neighboring germ line cells in *Drosophila* ovaries. In contrast to wild-type egg chambers (left), Filamin (red) and Kelch (blue) no longer concentrate at ring canals in the absence of Rings lost (right). Image © 2011 Morawe et al.
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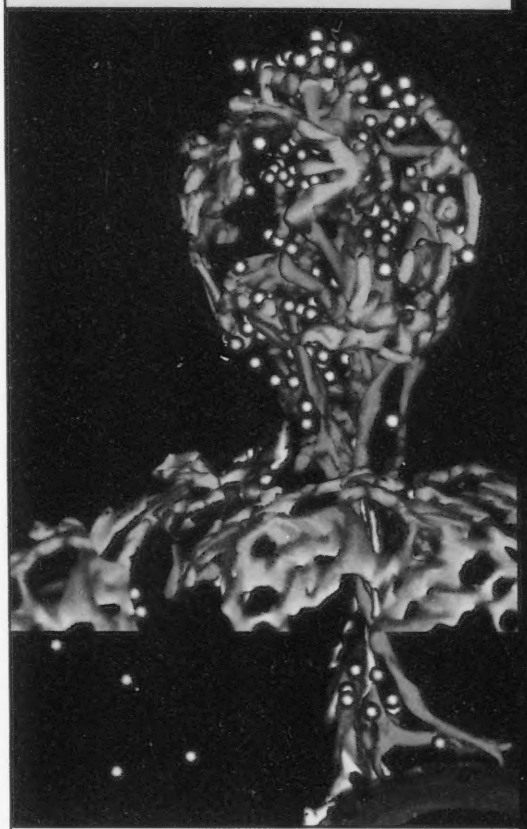

On the cover

West et al. use electron tomography to reconstruct the 3D organization of the ER in budding yeast and identify three peripheral ER domains: tubular ER (green), central cisternal ER (yellow) and plasma membrane–associated ER (blue). The image superimposes two separate tomograms from yeast with different bud diameters to demonstrate the ER domains' distributions during inheritance. The nuclear envelope is colored orange, the Golgi purple, and vesicles pink and white.
Image courtesy of Matt West.
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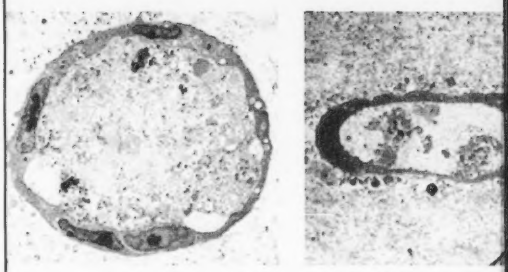

Yano et al. reveal that the adherens junction protein Tara regulates epithelial morphology by promoting expression of the adhesion molecule E-cadherin. Whereas wild-type MDCK cell cysts (left) are spherical, cysts lacking Tara (right) are elliptical.
Image © 2011 Yano et al.
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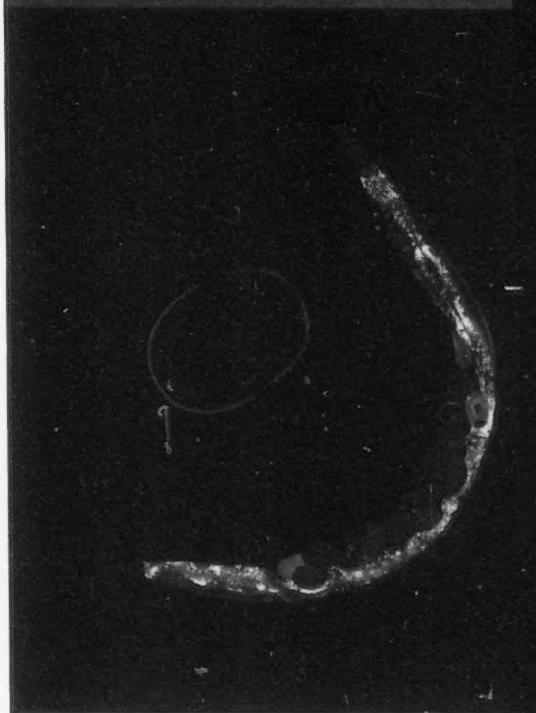

On the cover

A *C. elegans* adult and a polarized embryo express the polarity proteins PAR-2 (green) and PAR-6 (red). Goehring et al. analyze the dynamics of these two proteins as they diffuse between opposing membrane domains and exchange with cytoplasmic pools. Image courtesy of Nathan Goehring.
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537 REST/NRSF governs the expression of dense-core vesicle gliosecretion in astrocytes
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583 PAR proteins diffuse freely across the anterior–posterior boundary in polarized *C. elegans* embryos
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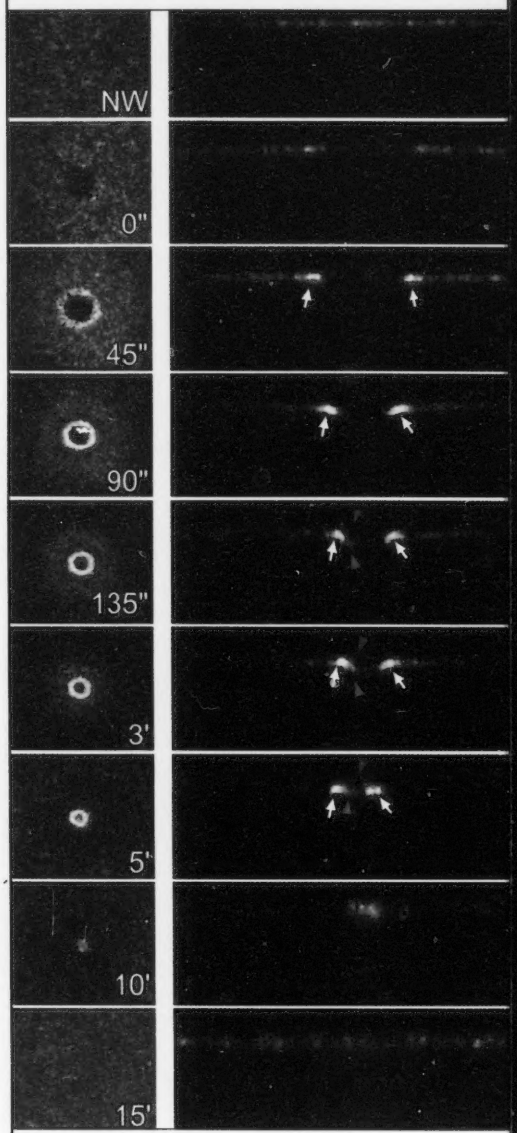

Laser treatment of a *Drosophila* embryo induces the assembly of an actin (red) and myosin II (green) contractile ring that rapidly closes the wound within an individual cell. A time-lapse series is shown in both XY (left) and XZ (right) planes. Image © 2011 Abreu-Blanco et al.
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On the cover

An apoptotic cell (green) is extruded from the zebrafish larval epidermis by an actin (red) and myosin ring that forms in the adjacent live cells. Gu et al. reveal that dying cells tell their neighbors to squeeze them out of the tissue by producing the sphingolipid sphingosine-1-phosphate. Image by Tetyana Forostyan,
© 2011 Gu et al.
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695 Tuberous sclerosis complex and Myc coordinate the growth and division of *Drosophila* intestinal stem cells
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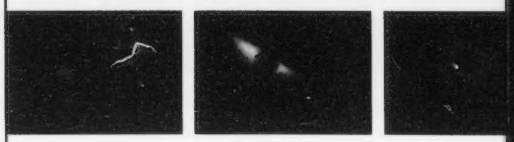
785 Titin visualization in real time reveals an unexpected level of mobility within and between sarcomeres
Katharina da Silva Lopes, Agnieszka Pietas, Michael H. Radke, and Michael Gotthardt



PC3 cells (left) adopt an elongated shape in the absence of RhoA (middle) but spread out when RhoC is depleted (right). Vega et al. demonstrate that these two closely related GTPases have different effects on cell morphology and migration because they interact with different effector proteins.
Image © 2011 Vega et al.
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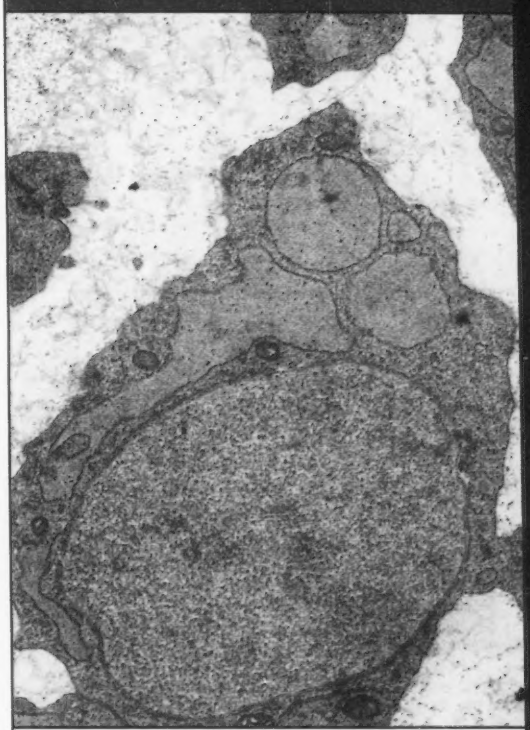

On the cover

Wilson et al. reveal that the endoplasmic reticulum protein Mia3 is required for the secretion of a variety of different collagen proteins. Chondrocytes from mice lacking Mia3 have a swollen ER, probably due to the abnormal retention of collagens. Image by Mei Sun, © 2011 Wilson et al.
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885 Peroxisome reintroduction in *Hansenula polymorpha* requires Pex25 and Rho1
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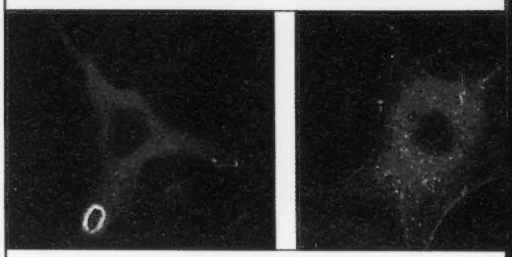

After PDGF stimulation (left), the phosphoinositide-binding protein SH3YL1 (green) localizes to circular dorsal ruffles containing F-actin (red). Ruffle formation is blocked by a phosphatidylinositol 3-kinase inhibitor (right) and by SH3YL1 depletion. Image © 2011 Hasegawa et al.
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985 PDZ-RhoGEF ubiquitination by Cullin3–KLHL20 controls neurotrophin-induced neurite outgrowth
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1033 The cortical protein Lte1 promotes mitotic exit by inhibiting the spindle position checkpoint kinase Kin4
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1049 Bub1 overexpression induces aneuploidy and tumor formation through Aurora B kinase hyperactivation
Robin M. Ricke, Karthik B. Jeganathan, and Jan M. van Deursen

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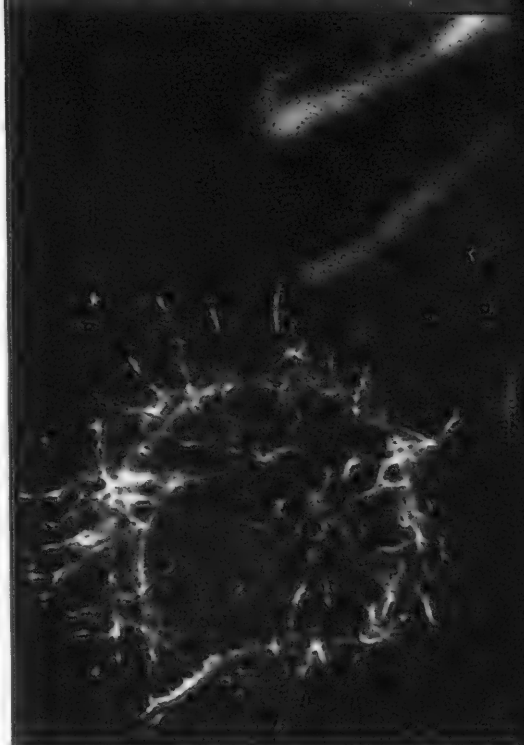

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Li et al. reveal that Sentin (green) localizes to the tips of growing microtubules (red) by binding to EB1, thereby promoting plus-end dynamics in *Drosophila* cells. Image courtesy of Wenjing Li.
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1065 **Septin filaments exhibit a dynamic, paired organization that is conserved from yeast to mammals**
Bradley S. DeMay, Xiaobo Bai, Louisa Howard, Patricia Occhipinti, Rebecca A. Meseroll, Elias T. Spiliotis, Rudolf Oldenbourg, and Amy S. Gladfelter

1083 **SLAIN2 links microtubule plus end–tracking proteins and controls microtubule growth in interphase**
Babet van der Vaart, Cristina Manatschal, Ilya Grigoriev, Vincent Olieric, Susana Montenegro Gouveia, Saša Bjelić, Jeroen Demmers, Ivan Vorobjev, Casper C. Hoogenraad, Michel O. Steinmetz, and Anna Akhmanova

1101 **Cbp3–Cbp6 interacts with the yeast mitochondrial ribosomal tunnel exit and promotes cytochrome *b* synthesis and assembly**
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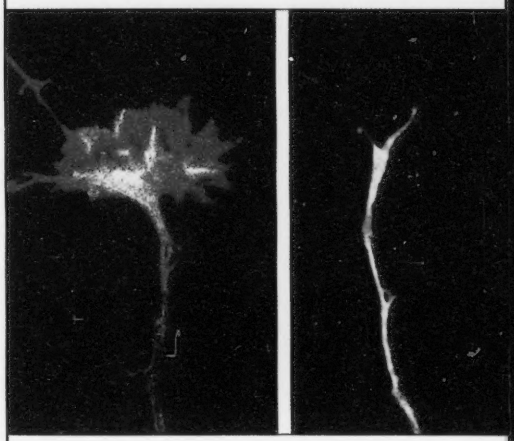
1115 **Type XII collagen regulates osteoblast polarity and communication during bone formation**
Yayoi Izu, Mei Sun, Daniela Zwolanek, Guido Veit, Valerie Williams, Byeong Cha, Karl J. Jepsen, Manuel Koch, and David E. Birk



Lin et al. report that the kelch protein KLHL20 is part of a ubiquitin ligase complex that promotes neurite outgrowth by targeting PDZ-RhoGEF for degradation. Hippocampal neurons (green) have a robust axonal growth cone (stained for F-actin, red) in the presence (left), but not the absence (right), of KLHL20.
Image © 2011 Lin et al.
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1197 miR669a and miR669q prevent skeletal muscle differentiation in postnatal cardiac progenitors
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1213 Cdc55 coordinates spindle assembly and chromosome disjunction during meiosis
Farid Bizzari and Adele L. Marston

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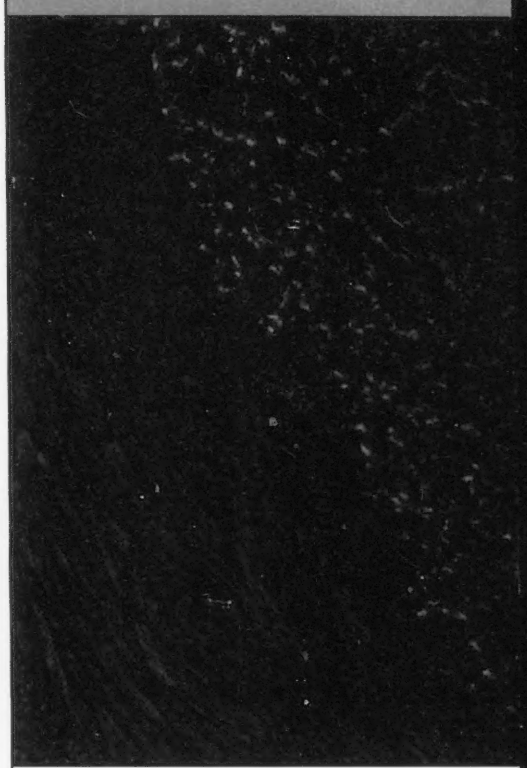

On the cover

Injured heart tissue transplanted with cardiac progenitors lacking β-sarcoglycan shows regions of multinucleate skeletal muscle myofibers expressing myosin heavy chain (red) but not the cardiac marker connexin43 (green). Crippa et al. show that β-sarcoglycan–null cardiac progenitors undergo aberrant differentiation into skeletal muscle due to reduced expression of the microRNAs miR669a and miR669q.
Image courtesy of Stefania Crippa.
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1229 CDK-1 inhibits meiotic spindle shortening and dynein-dependent spindle rotation in *C. elegans*
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1245 The p25 subunit of the dynactin complex is required for dynein–early endosome interaction
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1257 Pannexin 3 functions as an ER Ca^{2+} channel, hemichannel, and gap junction to promote osteoblast differentiation
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1275 Phosphoinositide 3-kinase signaling pathway mediated by p110α regulates invadopodia formation
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1289 Pak1 regulates focal adhesion strength, myosin IIA distribution, and actin dynamics to optimize cell migration
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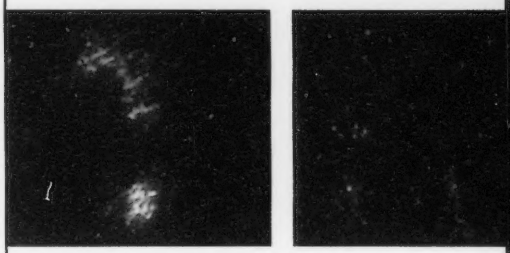
1305 SPARC promotes pericyte recruitment via inhibition of endoglin-dependent TGF-β1 activity
Lee B. Rivera and Rolf A. Brekken



Cells weakly adhered to low concentrations of fibronectin (left) show increased levels of activated Pak kinase (green) at focal adhesions (red) compared to cells strongly adhered to high fibronectin concentrations (right). Delorme-Walker et al. reveal that Pak kinases coordinate actin dynamics and adhesion during cell migration.
Image © 2011 Delorme-Walker et al.
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